What is claimed is:

1. An information-recording method for recording information on an information-recording medium, the information-recording method comprising:

moving a light beam at a selected linear velocity relative to the information-recording medium;

controlling the light beam to generate a multi-pulse having at least three power levels of a first power level Ph, a second power level Pl which is lower than the first power level, and a third power level Pm which is intermediate therebetween, the multi-pulse being repeatedly modulated between the first power level Ph and the third power level Pm;

adjusting the third power level Pm in response to the selected linear velocity; and

recording the information by irradiating the information-recording medium with the controlled light beam including the adjusted third power level to change a state of an irradiated portion of the information-recording medium.

2. The information-recording method according to claim 1, wherein the third power level Pm is adjusted so that the third power level Pm is increased in proportion to the linear velocity.

3. The information-recording method according to claim 1, wherein a ratio Pm/Ph of the third power level Pm with respect to the first power level Ph is adjusted in response to the linear velocity.

4. The information-recording method according to claim 3, wherein the ratio Pm/Ph of the third power level Pm with respect to the first power level Ph is adjusted so that the ratio Pm/Ph is increased in proportion to the linear velocity.

5. The information-recording method according to claim 1, wherein a ratio (Pm-P1)/(Ph-P1) of a difference between the third power level Pm and the second power level P1 with respect to a difference between the first power level Ph and the second power level P1 is adjusted in response to the linear velocity.

6. The information-recording method according to claim 5, wherein the ratio (Pm-P1)/(Ph-P1) is adjusted so that the ratio (Pm-P1)/(Ph-P1) is increased in proportion to the linear velocity.

7. The information-recording method according to claim 1, wherein a pulse width of a leading pulse or a tail

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pulse of the multi-pulse is adjusted in response to the third power level Pm.

8. The information-recording method according to claim 7, wherein the pulse width of the leading pulse or the tail pulse of the multi-pulse is adjusted so that the pulse width is increased in proportion to the third power level Pm.

9. The information-recording method according to claim 1, wherein a pulse width of a leading pulse or a tail pulse of the multi-pulse is adjusted in response to a ratio Pm/Ph of the third power level Pm with respect to the first power level Ph.

10. The information-recording method according to claim 9, wherein the pulse width of the leading pulse or the tail pulse of the multi-pulse is adjusted so that the pulse width is increased in proportion to the ratio Pm/Ph of the third power level Pm with respect to the first power level Ph.

11. The information-recording method according to claim 1, wherein a pulse width of a leading pulse or a tail pulse of the multi-pulse is adjusted in response to a ratio (Pm-Pl)/(Ph-Pl) of a difference between the third power

level Pm and the second power level Pl with respect to a difference between the first power level Ph and the second power level Pl.

12. The information-recording method according to claim 11, wherein the pulse width of the leading pulse or the tail pulse of the multi-pulse is adjusted so that the pulse width is increased in proportion to the ratio (Pm-Pl)/(Ph-Pl) of the difference between the third power level Pm and the second power level Pl with respect to the difference between the first power level Ph and the second power level Pl.

13. The information-recording method according to claim 1, further comprising reading the selected linear velocity from the information-recording medium before recording the information, wherein the information is recorded with the CLV system.

14. The information-recording method according to claim 1, wherein the information is recorded with the CAV system, and the selected linear velocity differs depending on a position on the information-recording medium in which the information is recorded.

15. An information-recording medium for recording

information by irradiating the information-recording medium with a light beam to change a state of an irradiated portion of the information-recording medium, the information-recording medium comprising:

a recording layer which causes the change of state;

a substrate which supports the recording layer; and

management information which is recorded on the substrate or the recording layer, wherein:

the radiating light beam is modulated to contain a multi-pulse having at least three power levels of a first power level Ph, a second power level Pl which is lower than the first power level, and a third power level Pm which is intermediate therebetween, the multi-pulse being repeatedly modulated between the first power level Ph and the adjusted third power level Pm; and

the management information includes information which relates to a linear velocity for moving the light beam relative to the information-recording medium and information which relates to the first power level Ph, the second power level Pl, and the third power level Pm adjusted in response to the linear velocity.

16. The information-recording medium according to claim 15, wherein the management information includes a ratio Pm/Ph between the first power level Ph and the third power level Pm.

17. The information-recording medium according to claim 16, wherein the ratio Pm/Ph is adjusted in response to the linear velocity.

18. The information-recording medium according to claim 15, wherein the management information includes information which represents a ratio (Pm-P1)/(Ph-P1) of a difference between the third power level Pm and the second power level P1 with respect to a difference between the first power level Ph and the second power level P1.

19. The information-recording medium according to claim 18, wherein the ratio (Pm-P1)/(Ph-P1) is adjusted in response to the linear velocity.

20. The information-recording medium according to claim 15, wherein the management information includes information which represents a ratio Pm/P1 between the third power level Pm and the second power level P1, and the ratio Pm/P1 is adjusted in response to the linear velocity.

21. The information-recording medium according to claim 15, wherein the management information includes values of the first power level Ph, the second power level P1, and the third power level Pm at a plurality of

recording speeds respectively.

22. The information-recording medium according to claim 21, wherein a value of (Ph-Pm) at a high linear velocity is smaller than a value of (Ph-Pm) at a low linear velocity.

23. The information-recording medium according to claim 21, wherein a value of (Pm-P1)/(Ph-P1) at a high linear velocity is larger than a value of (Pm-P1)/(Ph-P1) at a low linear velocity.

24. The information-recording medium according to claim 15, wherein the information is recorded with the CLV system or the CAV system.

25. A method for controlling a light power for recording information on an information-recording medium by using a light beam having at least three power levels of a first power level Ph, a second power level P1 which is lower than the first power level, and a third power level Pm which is intermediate therebetween, the method for controlling the light power comprising:

adjusting the third power level Pm in response to a linear velocity defined by the information-recording medium; and

controlling th light power to generate a multi-pulse which is repeatedly modulated at least between th first power level Ph and the adjusted third power level Pm.

26. The method for controlling the light power according to claim 25, wherein at least one of Pm/Pl, Pm/Ph, and a ratio (Pm-1)/(Ph-Pl) is adjusted in response to the linear velocity when the third power level Pm is adjusted in response to the linear velocity determined depending on the information-recording medium.